

**FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6188**  
**IP Callison & Sons, division of Callison Inc. (IP Callison & Sons).**  
**May 2010**

**SUMMARY**

**PURPOSE of this Fact Sheet**

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed State Waste Discharge permit for IP Callison & Sons that will allow the discharge of wastewater to the city of Chehalis Publicly Owned Treatment Works (POTW).

State law requires any industrial facility to obtain a permit before discharging waste or chemicals to waters of the state. This statute includes commercial or industrial discharges to sewerage systems operated by municipalities or public entities which discharge into waters of the state.

A State Waste Discharge permit limits the types and amounts of pollution the facility may discharge. Ecology bases those limits either on (1) the pollution control or wastewater treatment technology available to the industry, or on (2) the effects of the pollutants to the POTW (local limits).

**PUBLIC ROLE in the Permit**

Ecology makes the draft permit and fact sheet available for public review and comment at least 30 days before we issue the final permit to the facility operator. Copies of the fact sheet and draft permit for IP Callison & Sons, State Waste Discharge permit ST 6188 are available for public review and comment from June 7, 2010, until the close of business July 6, 2010. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement**.

Before Ecology published the draft State Waste Discharge permit, IP Callison & Sons, reviewed it for factual accuracy. Ecology corrected any errors or omissions about the facility's location, product type or production rate, discharges or receiving water, or its history.

After the public comment period closes, Ecology will summarize substantive comments and our responses to them. Ecology will include our summary and responses to comments to this Fact Sheet as **Appendix D - Response to Comments**, and publish it when we issue the final State Waste Discharge permit. The rest of the fact sheet will not be revised, but the full document will become part of the legal history contained in the facility's permit file.

**DRAFT**

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## I. INTRODUCTION

The legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

Ecology adopted rules describing how it exercises its authority:

- State Waste Discharge Program (Chapter 173-216 Washington Administrative Code [WAC])
- Submission of Plans and Reports for Construction of Wastewater Facilities (Chapter 173-240 WAC)

These rules require any industrial facility operator to obtain a State Waste Discharge permit before discharging wastewater to state waters. This rule includes commercial or industrial discharges to sewerage systems operated by municipalities or public entities which discharge into public waters of the state. They also help define the basis for limits on each discharge and for other performance requirements imposed by the permit.

Under the State Waste Discharge permit program and in response to a complete and accepted permit application Ecology must prepare a draft permit and accompanying fact sheet, and make it available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of 30 days. (See **Appendix A--Public Involvement** for more detail about the Public Notice and Comment procedures). After the Public Comment Period ends, Ecology may make changes to the draft State Waste Discharge permit in response to comment. Ecology will summarize the responses to comments and any changes to the permit in **Appendix D**.

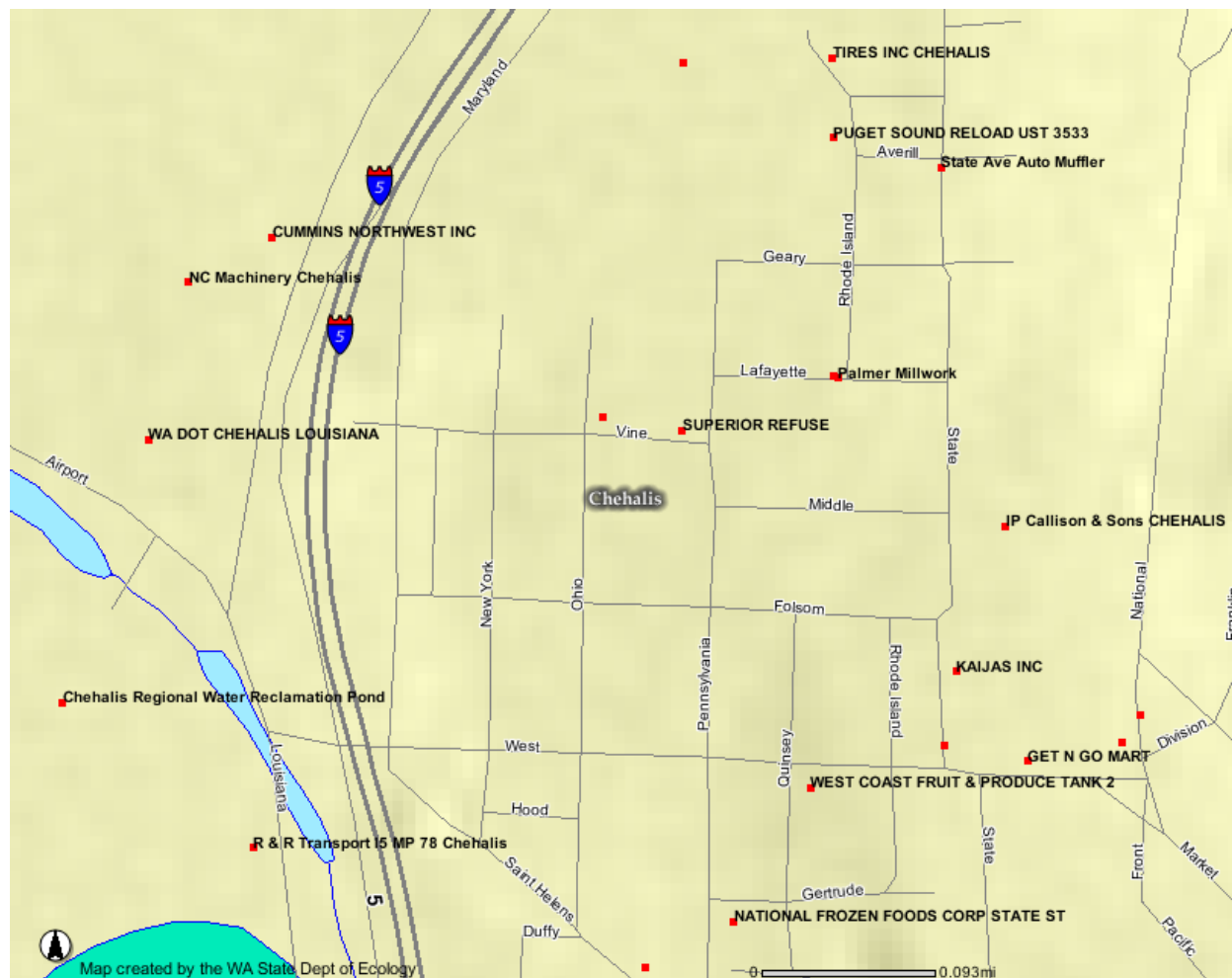
**Table 1 - General Facility Information**

Applicant:	IP Callison & Sons, division of Callison, Inc.
Facility Name and Address:	IP Callison & Sons, division of Callison, Inc. 799 North National Avenue Chehalis, WA 98532
Type of Facility:	Mint oil production
SIC Code:	2899
Discharge Location:	Latitude: 46.675556 Longitude: 122.972222
Treatment Plant Receiving Discharge	City of Chehalis Publicly Owned Treatment Works (POTW)
Contact at Facility	Name: Murray Rose Telephone #: 360-412-3399

**Table 1 - General Facility Information**

Responsible Official	Name: Damon H. Smith Title: Operations and Facilities Manager Address: 2400 Callison Road Northeast Lacey, Washington 98516 Telephone #: 360-412-3340 FAX #: 360-412-3344
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**Figure 1. Facility Location Map**



## II. BACKGROUND INFORMATION

### A. Facility Description

#### History

International Milk Condensing Company built the first building on the site where IP Callison & Sons is located today. It was constructed by L.F. Heinzerling, a Seattle contractor, who outbid Anton Hess, the

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only Chehalis bidder. The architect for the project was Mr. Barnes. Construction started around April 10, 1903. The contractor was somewhat delayed due to a lumber shortage, because of a railroad car shortage to transport lumber. The one story building with 12 feet walls, 60 feet by 100 feet, took about two months to build. The contractor completed the plant on time and production began on schedule.

Around September 6, 1904, the original building burned down. International Milk decided it would not rebuild. Local businessmen and dairymen decided to form a company and rebuild. The company, St. Helens Condensing Company, broke ground on December 4, 1904. The new building was 60 feet by 120 feet, in an L-shape to accommodate a kitchen. The company reused the big water tank, the engine house and office that were used by the old company. St. Helens Condensing Company sold the building on May 4, 1906, to Pacific Coast Condensing/Carnation, which planned to make improvements at that time. Then on February 1, 1925, Carnation sold the plant to Borden, which owned the building until January 1, 1945, when it sold the evaporated milk plant and leased the tin shop, the can manufacturing division, to the Lewis-Pacific Dairyman's Association.

Then on September 3, 1946, legal papers were recorded showing that the Lewis-Pacific Dairyman's Association (later to become Darigold) sold the property to Henry Callison, Cecil Callison, and R.C. Callison later to be called , IP Callison & Sons.

The current building has a foundation composed of timbers on concrete footings. The floor is a mixture of concrete slabs and wooden flooring. On the north end of the building, there is a steel walkway used for transporting the heavy drums. The outside walls are concrete blocks and the inside walls are a mixture of concrete and wooden paneling. The tall, white stack of the old boiler house is still a well-known Chehalis landmark.

The facility has not made any major production modifications since the 1950s' but has continued maintenance of the process. The facility went through some construction modification; for example, seismic retrofit in late 1980s' and recent barrel storage shed construction.

The facility previously discharged under a National Pollutant Discharge Elimination System (NPDES) permit into Salzer Creek, a tributary to the Chehalis River. The discharge flowed from the plant through a side sewer to a storm drain in State Street. This storm drain discharged into a wetland alongside the railroad track. From this wetland, the railroad ditch conveyed the water to Salzer Creek. The primary pollutant monitored was temperature. The NPDES permit issued on March 31, 2000, required that the facility install a cooling tower to reduce the volume of cooling water discharged to the environment. The facility did not meet the compliance schedule for this installation.

A stormwater permit inspection on October 8, 2001, showed that the facility discharged water from the drum washing facility to the city sewer.

As a result of this inspection, the facility agreed to:

1. Install the cooling tower.
2. Cease discharge to the storm drain and Salzer Creek.
3. Route the boiler blowdown to the city sewer.
4. Route the cleanup water from the production room to the city sewer.

5. Route the drum washwater to the city sewer.

Several years ago IP Callison & Sons installed a glycol closed loop cooling system and discontinued the discharge to surface water

These changes required Ecology to issue a state waste discharge permit under the authority of WAC 173-216.

Currently, the facility discharges industrial wastewater under a state waste discharge permit. The city of Chehalis Publicly Owned Treatment Works (POTW) is receiving the discharge. The discharge is subject to the federal categorical limits (40 CFR<sup>1</sup> Part 454) and local limits (Chehalis Municipal Code Chapter 13.08). The federal categorical limits and local limits are listed later in this fact sheet.

### **Industrial Process**

IP Callison & Sons started production of mint oils and pharmaceutical goods in the 1940s'. Since the 1950s' the facility began to focus exclusively on peppermint oil, spearmint oil and flavors.

IP Callison & Sons carry out blending and distillation of mint (spearmint and peppermint) oil and flavors which are used to flavor confectionary and oral care products.

Peppermint oil, spearmint oil and flavors are raw materials (initial distillation at field) and products as well. Over six million pounds are processed through blending and distillation.

The processes within the facility include:

- Distillation
- Spray drying
- Blending
- Boiler operation
- Drum washing

The facility operates 24-hours a day, five days a week, 50 weeks a year with no seasonal variation. IP Callison & Sons employs 14 people in the Chehalis facility.

Miscellaneous chemicals stored here are paint, lab glass cleaner, used oil and boiler chemicals.

IP Callison & Sons is a significant industrial user subject to 40 CFR PART 454—GUM AND WOOD CHEMICALS MANUFACTURING POINT SOURCE CATEGORY; Subpart E—Essential Oils Subcategory.

The following are processes that generate wastewater:

- Boiler blowdown—represent majority of the discharge

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<sup>1</sup> Code of Federal Regulations

- Tank cleaning in production room and spray dry rooms—not an everyday operation
- Drum wash—primarily by steam; therefore, this discharge has low volume

A production schematic flow diagram can be found in Appendix C.

### **Wastewater Pretreatment**

The facility uses a maximum of 21,867 gallons of water per day. It discharges a maximum of 5,000 gallons of wastewater per day. The difference is lost to evaporation or is used in the kitchen and restrooms which discharge separately to the sewer system.

IP Callison & Sons does not have a wastewater pretreatment plant; however, it uses a number of devices throughout the facility to retrieve oils. Drains are covered with filters, which are disposed as solid waste when dirty.

Floor drains in the production room were recently modified. They are raised or closed off to prevent the potential for spills to reach the sewer.

### **Discharge Location to the City of Chehalis POTW**

There are three points of discharge from the facility:

- Discharge from the boiler operation; that is the main discharge from the facility; the discharge is metered.
- Tank cleaning is not an everyday operation; the discharge is not metered.
- Drum wash is done primarily by steam; the discharge is not metered.

Currently the discharge from the boiler operation and drum wash is monitored, however some of the floor drains miss the sample point. The proposed permit requires a representative sample of all three waste streams.

### **Solid Wastes**

The only solid waste generated during treatment are drain filters, which are disposed when dirty.

### **B. Permit Status**

Callison & Sons submitted an application for permit renewal on December 31, 2008. Ecology accepted it as complete on January 8, 2009.

Ecology issued the previous permit for this facility on October 13, 2005. The previous permit placed effluent limits on the following parameters:

- pH
- Temperature

- Copper
- Chromium
- Zinc

### C. Summary of Compliance with Previous Permit Issued

Ecology staff last conducted a compliance inspection on February 24, 2010.

Callison & Sons has exceeded its pH, copper and zinc effluent limits several times throughout the duration of the permit issued on October 13, 2005, **Table 2**. Ecology assessed facility compliance based on its inspections and its review of the facility's Discharge Monitoring Reports (DMRs).

**Table 2: Summary of compliance since November 1, 2005.**

Monitoring Parameter	Units	Maximum sample measurement	Permit requirement	Local limit	Number of exceedances
pH	Standard units (SU)	11.59	6.0 to 9.0	6.0 to 9.0	3
Biochemical oxygen demand (BOD)	Milligrams per liter (mg/L)	574	N/A	300	1
Copper	mg/L	0.287	0.25	0.25	1
Zinc	mg/L	5.36	1.4	1.4	9
Discharge monitoring reports (DMRs)	DMRs submitted late				1

### D. Wastewater Characterization

Callison & Sons reported the concentration of pollutants in the State Waste Discharge application and in discharge monitoring reports (DMRs). The tabulated data represents the quality of the effluent discharged from November 1, 2005, **Table 3**. The DMR data is also presented on graphs in Appendix C. The effluent is characterized as follows:

**Table 3: Wastewater characterization reported in the DMRs since November 1, 2005.**

Parameter	Units	Minimum value	Maximum value	Permit limit	Number of samples
Flow, monthly average	Millions of gallons per day (MGD)		<1,300	N/A	50



<b>Parameter</b>	<b>Units</b>	<b>Minimum value</b>	<b>Maximum value</b>	<b>Permit limit</b>	<b>Number of samples</b>
pH	SU	6.06	11.59	6.0 to 9.0	50
Temperature	Degree Fahrenheit	93	98	104	13
Copper	mg/L	3 values below detection limit	0.287	.25	50
Chromium	mg/L	14 values below detection limit	0.298	2.0	50
Zinc	mg/L	0.012	5.36	1.4	50

### III. PROPOSED PERMIT CONDITIONS

State regulations require that Ecology base permit discharge limits on the:

- Technology and treatment methods available to treat specific pollutants (technology-based). Technology-based limits are set by the EPA and published as a regulation, or Ecology develops limits on a case-by-case basis (40 CFR 125.3, and RCW 90.48). Dischargers must treat wastewater using all known, available, reasonable methods of prevention, control, and treatment (AKART).
- Effects of the pollutants to the POTW (local limits). Wastewater must not interfere with the operation of the POTW.
- Applicable requirements of other local, state and federal laws.

Ecology applies the most stringent of these limits to each parameter of concern and further describes the proposed limits below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, monitoring, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the State of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, and are not listed in regulation.

Ecology does not usually develop permit limits for pollutants that were not reported in the permit application but that may be present in the discharge. The permit does not authorize the discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology if significant changes occur in any constituent. Industries may be in violation of their permit until the permit is modified to reflect additional discharge of pollutants.

#### A. Technology-Based Effluent Limits

All waste discharge permits issued by Ecology must specify conditions requiring available and reasonable methods of prevention, control, and treatment (AKART) of discharges to waters of the state (RCW 90.48).

Existing federal categorical limits for this facility are found under 40 CFR2 PART 454—GUM AND WOOD CHEMICALS MANUFACTURING POINT SOURCE CATEGORY; Subpart E—Essential Oils Subcategory. Those categorical limits represent AKART for this facility.

The following permit limits are necessary to satisfy the requirement for AKART:

**Table 4: Technology Based Effluent Limits**

EFFLUENT LIMITS (lb/1,000 lb of product)		
Parameter	Maximum for any 1 day	Average of daily values for 30 consecutive days
5-day biochemical oxygen demand (BOD5)	22.7	12.0
Total suspended solids (TSS)	9.01	3.11
pH	( <sup>1</sup> )	( <sup>1</sup> )
<sup>1</sup> Within the range 6.0 to 9.0.		

Callison & Sons operates 250 days a year and produces 6,000,000 pounds of essential oils annually. The average daily production is 24,000 pounds. Effluent limitations based on the average production are listed in **Table 5**.

**Table 5: Technology Based Effluent Limits based on the average daily production of 24,000 pounds.**

EFFLUENT LIMITS (pounds per 24,000 pounds of average daily production)		
Parameter	Maximum for any 1 day	Average of daily values for 30 consecutive days
5-day biochemical oxygen demand (BOD5)	545	288
Total suspended solids (TSS)	216	74.6

Callison & Sons reported that the anticipated maximum discharge flow was 5,000 gallons per day (gpd). Effluent limits based on the average production of 24,000 pounds per day and maximum discharge flow are listed in **Table 6**.

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<sup>2</sup> Code of Federal Regulations

**Table 6: Technology Based Effluent Limits based on the average daily production of 24,000 pounds and maximum discharge flow of 5,000 gpd.**

EFFLUENT LIMITS (mg/L)		
Parameter	Maximum for any 1 day	Average of daily values for 30 consecutive days
5-day biochemical oxygen demand (BOD <sub>5</sub> )	13,100	6,900
Total suspended solids (TSS)	5,120	1,790

Limits listed in **Table 6** are significantly higher than the local limits in **Table 7**, therefore the local limits for BOD<sub>5</sub> and TSS are proposed to be placed in the permit.

#### B. Effluent Limits Based On Local Limits

To protect the city of Chehalis POTW from pass-through, interference, concentrations of toxic chemicals that would impair beneficial or designated uses of sludge, or potentially hazardous exposure levels, Ecology believes it necessary to impose limits for certain parameters. Ecology based these limits on local limits established by the city of Chehalis POTW and codified in ordinance. Applicable limits for this discharge are listed in **Table 7**.

**Table 7: Local limits.**

Parameter	EFFLUENT LIMITS (mg/L)
Arsenic	0.23
Cadmium	0.15
Chromium	2.0
Copper	0.25
Cyanide	1.4
Lead	0.14
Mercury	0.0003
Nickel	1.8
Selenium	0.2
Silver	0.16
Zinc	1.4
Fat, oil and grease (FOG)	100
5-day biochemical oxygen demand (BOD <sub>5</sub> )	300

**Table 7: Local limits.**

Parameter	EFFLUENT LIMITS (mg/L)
Total suspended solids (TSS)	300
pH <sup>3</sup>	6.0 SU to 9.0 SU
Temperature <sup>4</sup>	150 degrees Fahrenheit

Limits for BOD<sub>5</sub> and TSS listed in **Table 6** are significantly higher than the local limits in **Table 7**; therefore, Ecology proposes that the permit limits for BOD<sub>5</sub> and TSS will be based on the local limits.

**C. Comparison of Effluent Limits with Limits of the Previous Permit Issued on October 13, 2005**

**Table 8: Comparison of Effluent Limits (limits are unaffected by the discharge volume)**

	Basis of Limit	Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001 (new location)
Parameter		Average Monthly	Maximum Daily	Maximum Daily
Arsenic, mg/L	Local limit & no data (LL&ND)	N/A	N/A	0.23
Cadmium, mg/L	LL&ND	N/A	N/A	0.15
Chromium, mg/L	no reasonable potential to exceed the local limit	2.0	2.0	2.0
Copper, mg/L	reasonable potential to exceed local limit	0.25	0.25	0.25
Cyanide, mg/L	LL&ND	N/A	N/A	1.4
Lead, mg/L	LL&ND	N/A	N/A	0.14
Mercury, mg/L	LL&ND	N/A	N/A	0.0003
Nickel, mg/L	LL&ND	N/A	N/A	1.8
Selenium, mg/L	LL&ND	N/A	N/A	0.2

<sup>3</sup> Limited by the Chehalis Municipal Code Chapter 13.08.

<sup>4</sup> Limited by the Chehalis Municipal Code Chapter 13.08.

**Table 8: Comparison of Effluent Limits (limits are unaffected by the discharge volume)**

	Basis of Limit	Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001 (new location)
Parameter		Average Monthly	Maximum Daily	Maximum Daily
Silver, mg/L	LL&ND	N/A	N/A	0.16
Zinc, mg/L	LL&ND	1.4	1.4	1.4
Oil and grease (O&G), mg/L	LL&ND	N/A	N/A	100
5-day biochemical oxygen demand (BOD5), mg/L	reasonable potential to exceed local limit	N/A	N/A	300
Total suspended solids (TSS), mg/L	LL&ND	N/A	N/A	300
pH, standard units (SU)	Technology & Chapter 13.08; reasonable potential to exceed the limits	6.0 to 9.0		6.0 to 9.0
Temperature, degree Fahrenheit	Technology & Chapter 13.08; no reasonable potential to exceed the limit	104	104	N/A

#### IV. MONITORING REQUIREMENTS

Ecology requires monitoring, recording, and reporting (WAC 173-216-110) to verify that the treatment process functions correctly and that the discharge complies with the permit's effluent limits.

Ecology details the proposed monitoring schedule under Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

The previous permit required monitoring of the following parameters:

- Flow

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- Biochemical oxygen demand (BOD)
- Temperature
- pH
- Copper
- Zinc
- Chromium

Ecology reduces monitoring, from monthly to annual, for the following parameters due to good performance.

- Chromium

Ecology discontinued monitoring for the following parameters due to good performance and lack of reasonable potential to impact the receiving POTW.

- Temperature

The proposed permit requires additional annual monitoring to further characterize the facility's effluent. Those pollutants could have a significant impact on the receiving POTW and the facility did not provide data with the application. The following is the list of the pollutants:

- Arsenic
- Cadmium
- Cyanide
- Lead
- Mercury
- Nickel
- Selenium
- Silver
- Oil and grease (O&G)
- Total suspended solids (TSS)

The facility will plumb the following wastewater streams to a new sample point (Outfall 001) before end of June 2010:

- Discharge from the boiler operation

- Tank cleaning
- Drum wash

#### **A. Lab Accreditation**

Ecology requires that facilities must use a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories* to prepare all monitoring data (with the exception of certain parameters).

### **V. OTHER PERMIT CONDITIONS**

#### **A. Reporting and Recordkeeping**

Ecology based permit condition S3 on our authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-216-110 and CFR 403.12 (e),(g), and (h)).

#### **B. Operations and Maintenance**

Ecology requires industries to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state regulations (WAC 173-240-080 and WAC 173-216-110).

IP Callison & Sons has no wastewater treatment system; however, there are number of devices throughout the facility to retrieve oils. Drains are covered with filters, which are disposed as solid waste when dirty.

The facility is not required to prepare an operation and maintenance manual as required by state regulation for the construction of wastewater treatment facilities (WAC 173-240-150).

#### **C. Prohibited Discharges**

Ecology prohibits certain pollutants from being discharged to the POTW. These include substances which cause pass-through or interference, pollutants which may cause damage to the POTW or harm to the POTW workers (Chapter 173-216 WAC) and the discharge of designated dangerous wastes not authorized by this permit (Chapter 173-303 WAC).

#### **D. Dilution Prohibited**

Ecology prohibits the facility from diluting its effluent as a partial or complete substitute for adequate treatment to achieve compliance with permit limits.

#### **E. General Conditions**

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all State Waste Discharge permits issued by Ecology.

### **VI. PUBLIC NOTIFICATION OF NONCOMPLIANCE**

Ecology may annually publish a list of all industrial users in significant noncompliance with Pretreatment Standards or Requirements during any of the previous four quarters in a local newspaper. Accordingly,

this permit condition informs the Facility that noncompliance with this permit may result in publication of the noncompliance.

## **VII. PERMIT ISSUANCE PROCEDURES**

### **A. Permit Modifications**

Ecology may modify this permit to comply with new or amended state or federal regulations.

### **B. Proposed Permit Issuance**

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limits and conditions believed necessary to control toxics. Ecology proposes that the permit be issued for five years.

## **VIII. REFERENCES FOR TEXT AND APPENDICES**

Washington State Department of Ecology.

Laws and Regulations( <http://www.ecy.wa.gov/laws-rules/index.html> )

Permit and Wastewater Related Information  
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)



## APPENDICES

### APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

Ecology proposes to reissue a permit to IP Callison & Sons. The permit prescribes operating conditions and wastewater discharge limits. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Application on June 4, 2009, and June 11, 2009, in the *Chronicle* to inform the public about the submitted application and to invite comment on the reissuance of this permit.

Ecology will place a Public Notice on June 7, 2010, in the *Chronicle* to inform the public and to invite comment on the proposed reissuance of this State Waste Discharge permit as drafted.

The Notice –

- Tells where copies of the draft Permit and Fact Sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website.).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Asks people to tell us how well the proposed permit would protect the receiving water.
- Invites people to suggest fairer conditions, limits, and requirements for the permit.
- Invites comments on Ecology's determination of compliance with antidegradation rules.
- Urges people to submit their comments, in writing, before the end of the Comment Period
- Tells how to request a public hearing of comments about the proposed State Waste Discharge Permit.
- Explains the next step(s) in the permitting process.

Ecology has published a document entitled **Frequently Asked Questions about Effective Public Commenting** which is available on our website at <http://www.ecy.wa.gov/biblio/0307023.html>.

You may obtain further information from Ecology by telephone, 360-407-6280, or by writing to the permit writer at the address listed below.

Water Quality Permit Coordinator  
Department of Ecology  
Southwest Regional Office  
P.O. Box 47775  
Olympia, WA 98504-7775

The primary author of this permit and fact sheet is Jacek Anuszewski, P.E.

## APPENDIX B--GLOSSARY

**AKART**--The acronym for “all known, available, and reasonable methods of prevention, control and treatment.” AKART is a technology-based approach to limiting pollutants from wastewater discharges which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and 520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

**Alternate Point of Compliance**--An alternative location in the ground water from the point of compliance where compliance with the ground water standards is measured. It may be established in the ground water at locations some distance from the discharge source, up to, but not exceeding the property boundary and is determined on a site specific basis following an AKART analysis. An “early warning value” must be used when an alternate point is established. An alternate point of compliance must be determined and approved in accordance with WAC 173-200-060(2).

**Ambient Water Quality**--The existing environmental condition of the water in a receiving water body.

**Ammonia**--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

**Annual Average Design Flow (AADF)**--The average of the daily flow volumes anticipated to occur over a calendar year.

**Average Monthly Discharge Limit**--The average of the measured values obtained over a calendar month's time.

**Background water quality**--The concentrations of chemical, physical, biological or radiological constituents or other characteristics in or of ground water at a particular point in time upgradient of an activity that has not been affected by that activity, [WAC 173-200-020(3)]. Background water quality for any parameter is statistically defined as the 95 percent upper tolerance interval with a 95 percent confidence based on at least eight hydraulically upgradient water quality samples. The eight samples are collected over a period of at least one year, with no more than one sample collected during any month in a single calendar year.

**Best Management Practices (BMPs)**--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

**BOD<sub>5</sub>**--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD<sub>5</sub> is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

**Bypass**--The intentional diversion of waste streams from any portion of the collection or treatment facility.

**Categorical Pretreatment Standards**--National pretreatment standards specifying quantities or concentrations of pollutants or pollutant properties which may be discharged to a POTW by existing or new industrial users in specific industrial subcategories.

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**Compliance Inspection - Without Sampling**--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

**Compliance Inspection - With Sampling**--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

**Composite Sample**--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

**Construction Activity**--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

**Continuous Monitoring**--Uninterrupted, unless otherwise noted in the permit.

**Distribution Uniformity**--The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

**Early Warning Value**--The concentration of a pollutant set in accordance with WAC 173-200-070 that is a percentage of an enforcement limit. It may be established in the effluent, ground water, surface water, the vadose zone or within the treatment process. This value acts as a trigger to detect and respond to increasing contaminant concentrations prior to the degradation of a beneficial use.

**Enforcement limit**--The concentration assigned to a contaminant in the ground water at the point of compliance for the purpose of regulation, [WAC 173-200-020(11)]. This limit assures that a ground water criterion will not be exceeded and that background water quality will be protected.

**Engineering Report**--A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

**Ground water**--Water in a saturated zone or stratum beneath the surface of land or below a surface water body.

**Grab Sample**--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

**Industrial User**--A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

**Industrial Wastewater**--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

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**Interference**--A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

**Local Limits**--Specific prohibitions or limits on pollutants or pollutant parameters developed by a POTW.

**Maximum Daily Discharge Limit**--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

**Maximum Day Design Flow (MDDF)**--The largest volume of flow anticipated to occur during a one-day period, expressed as a daily average.

**Maximum Month Design Flow (MMDF)**--The largest volume of flow anticipated to occur during a continuous 30-day period, expressed as a daily average.

**Maximum Week Design Flow (MWDF)**--The largest volume of flow anticipated to occur during a continuous 7-day period, expressed as a daily average.

**Method Detection Level (MDL)**--The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

**pH**--The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7.0 is defined as neutral and large variations above or below this value are considered harmful to most aquatic life.

**Pass-through**--A discharge which exits the POTW into waters of the-State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

**Peak Hour Design Flow (PHDF)**--The largest volume of flow anticipated to occur during a one-hour period, expressed as a daily or hourly average.

**Peak Instantaneous Design Flow (PIDF)**--The maximum anticipated instantaneous flow.

**Point of Compliance**--The location in the ground water where the enforcement limit shall not be exceeded and a facility must be in compliance with the Ground Water Quality Standards. It is determined on a site specific basis and approved or designated by Ecology. It should be located in the ground water as near and directly downgradient from the pollutant source as technically, hydrogeologically, and geographically feasible, unless an alternative point of compliance is approved.

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**Potential Significant Industrial User**--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

- a. Exceeds 0.5 percent of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

Ecology may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

**Quantitation Level (QL)**--A calculated value five times the MDL (method detection level).

**Reasonable Potential**--A reasonable potential to cause a water quality violation, or loss of sensitive and/or important habitat.

**Significant Industrial User (SIU)**--

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority\* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority\* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

\*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

**Slug Discharge**--Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge to the POTW. This may include any pollutant released at a flow rate which may cause interference with the POTW.

**Soil Scientist**--An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5,3,or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

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**Solid waste**--All putrescible and non-putrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

**Soluble BOD<sub>5</sub>** --Determining the soluble fraction of Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of soluble organic material present in an effluent that is utilized by bacteria. Although the soluble BOD test is not specifically described in Standard Methods, filtering the raw sample through at least a 1.2 um filter prior to running the standard BOD<sub>5</sub> test is sufficient to remove the particulate organic fraction.

**State Waters**--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

**Stormwater**--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

**Technology-based Effluent Limit**--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

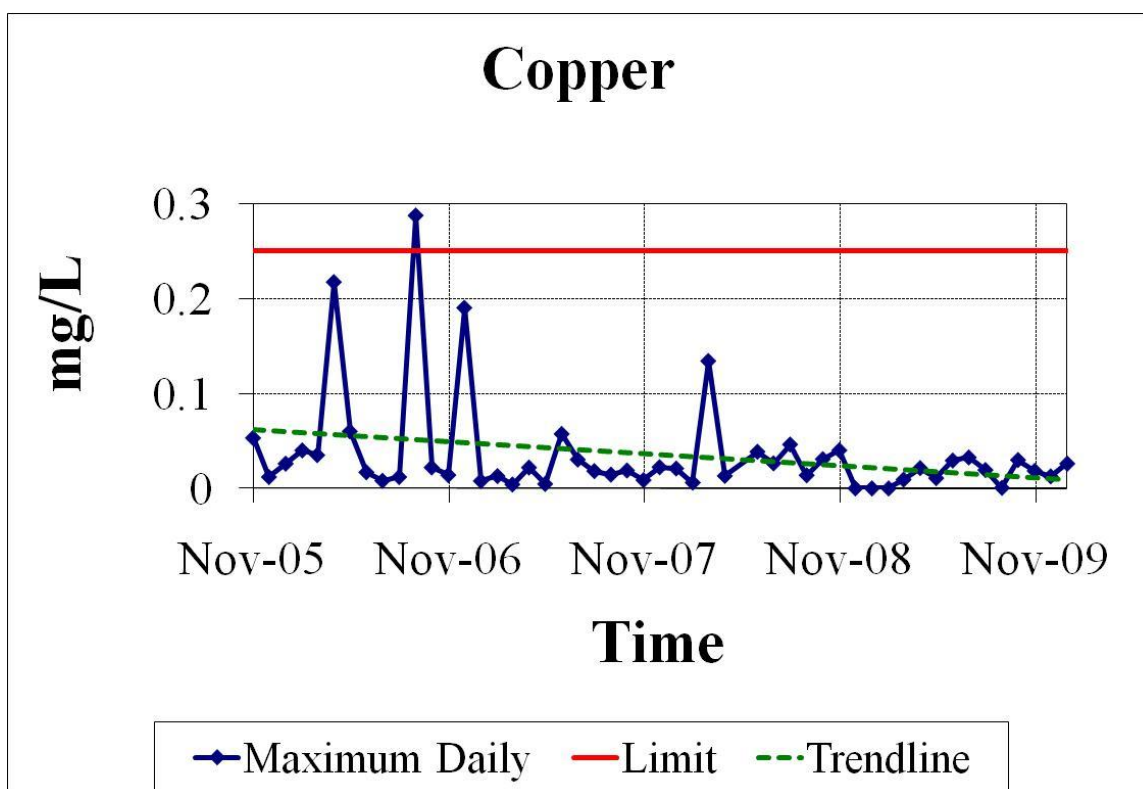
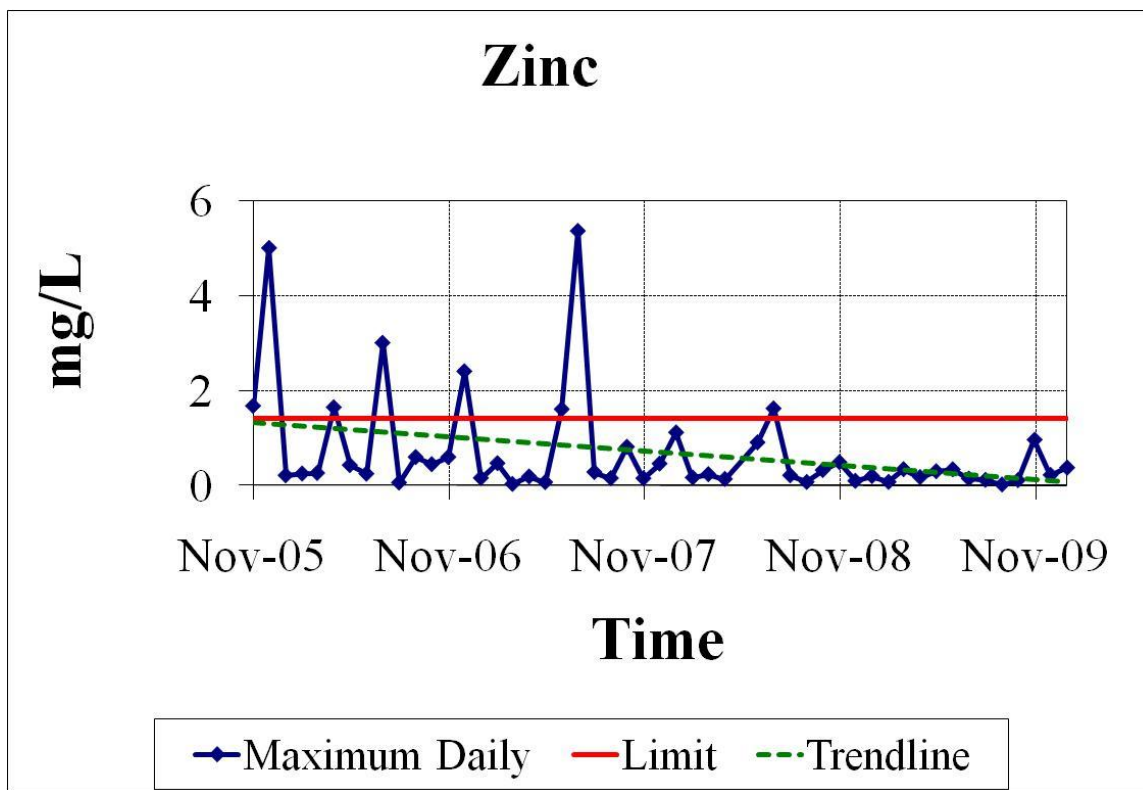
**Total Coliform Bacteria**--A microbiological test which detects and enumerates the total coliform group of bacteria in water samples.

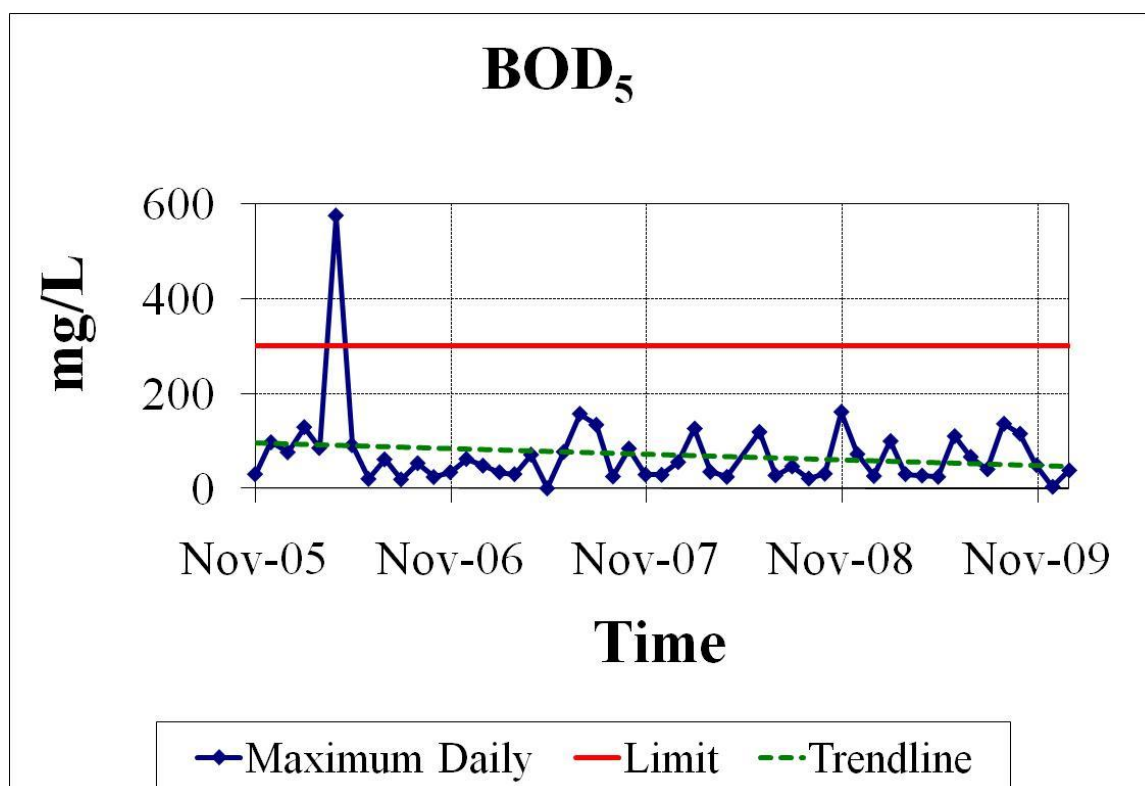
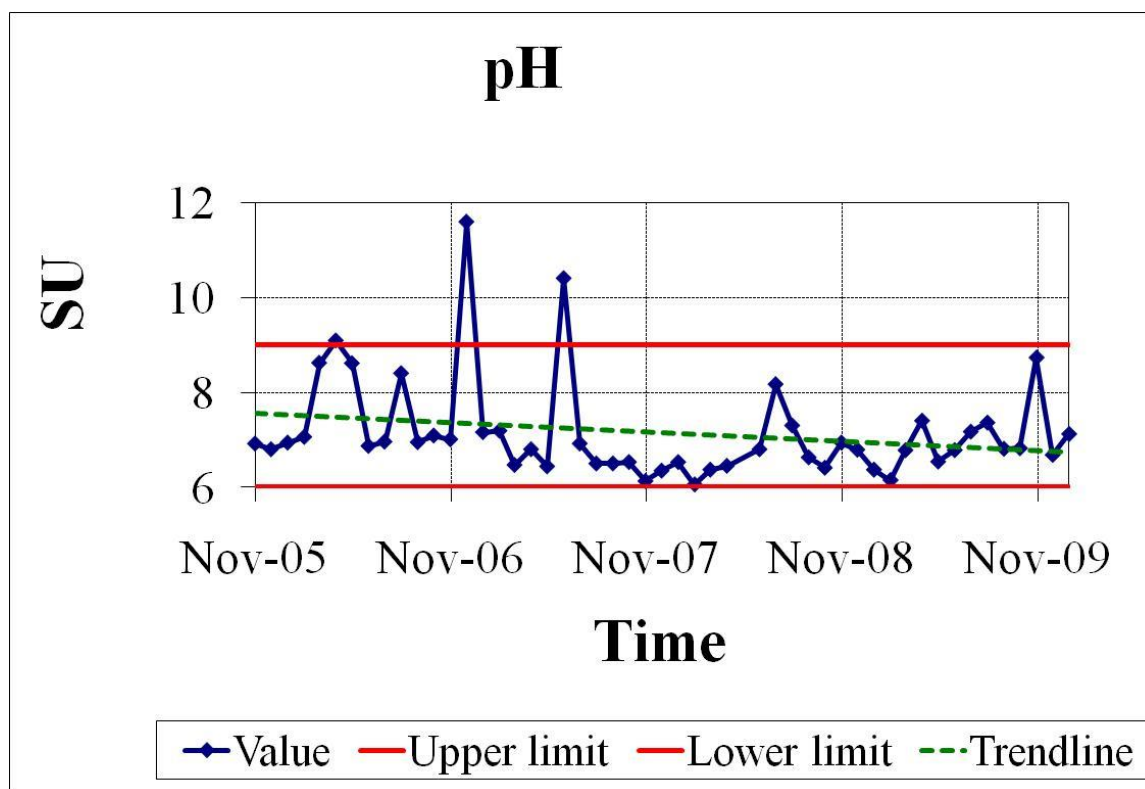
**Total Dissolved Solids**--That portion of total solids in water or wastewater that passes through a specific filter.

**Total Suspended Solids (TSS)**--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

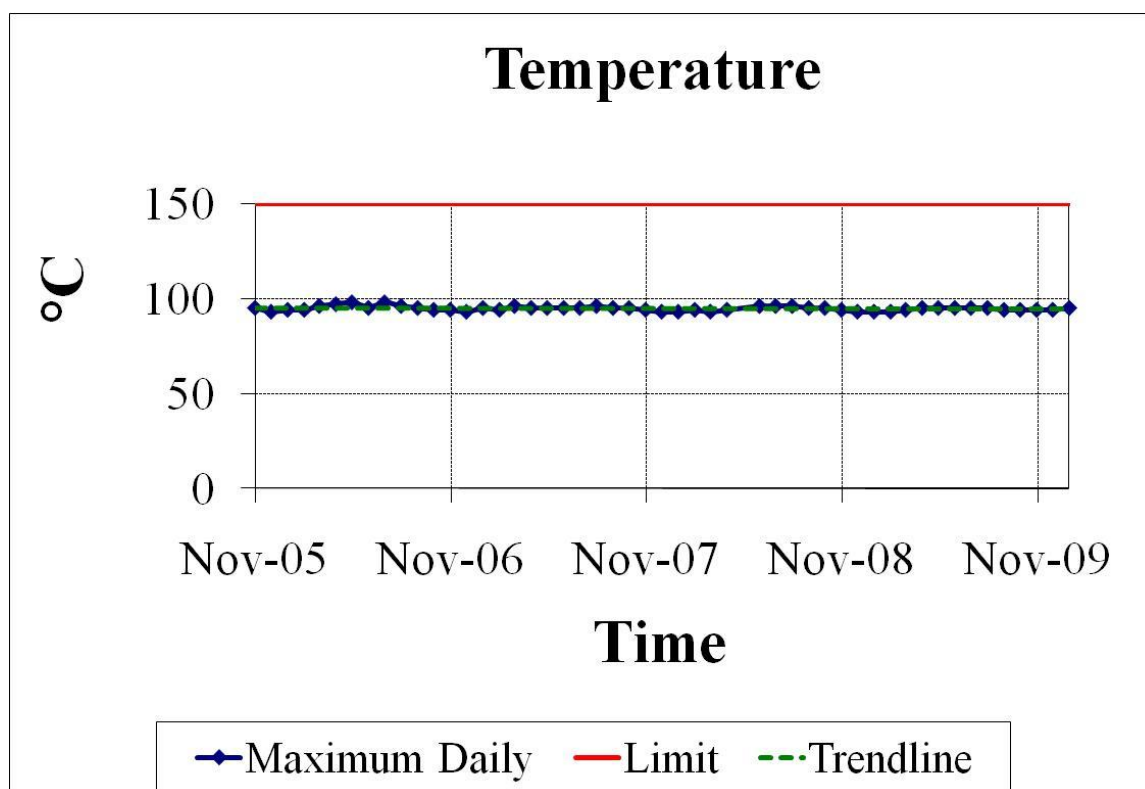
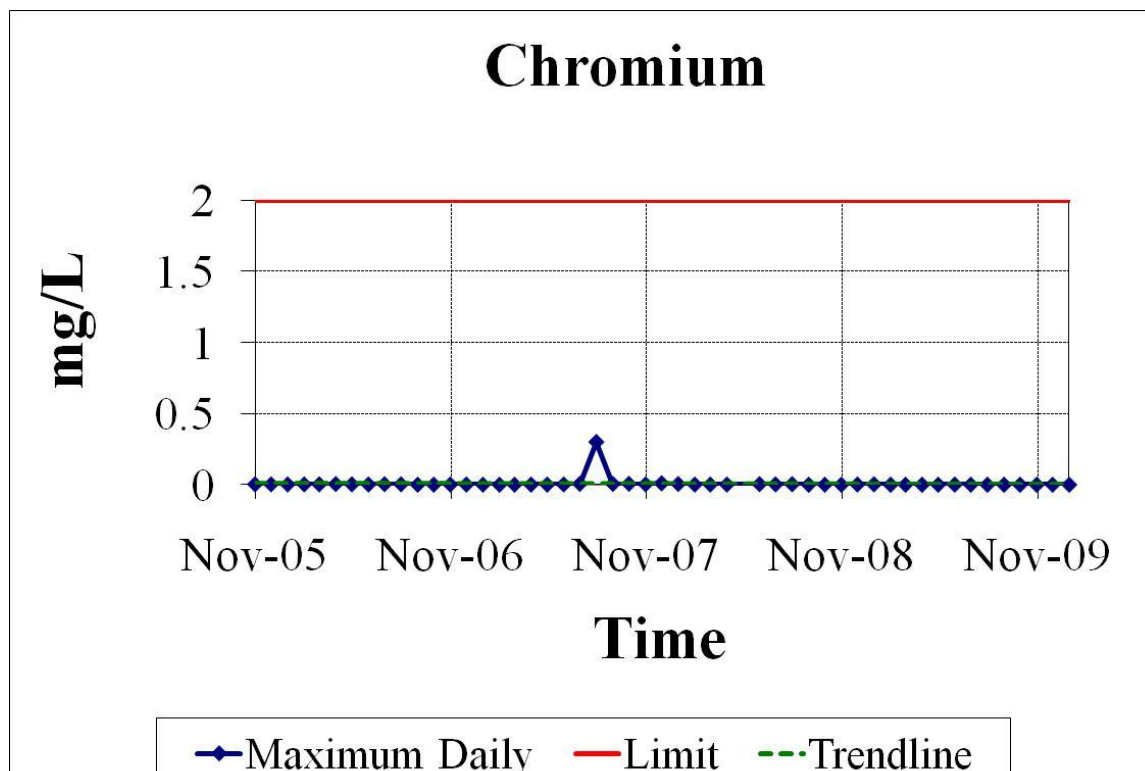
**Water Quality-based Effluent Limit**--A limit on the concentration of an effluent parameter that is intended to prevent pollution of the receiving water.

APPENDIX C--TECHNICAL CALCULATIONS









APPENDIX D—RESPONSE TO COMMENTS